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THE VARIATIONS OF APORRHAIIS OCCIDENTALIS BECK

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This interesting species presents considerable variation throughout its range from the Georges Bank off Massachusetts to northern Labrador, in depths of water varying from 6 to 120 fathoms. Although naturally merging into each other there are three quite distinct forms. One is found along the coast of Maine and Nova Scotia, the second along the coast of Labrador, while the typical form seems to occupy the Gulf of St. Lawrence and the deeper waters of the Gulf of Maine. In my list of mollusks from Labrador, Newfoundland and Nova Scotia, collected by Mr. Owen Bryant (1926), I gave to the coarse ribbed form from Maine the varietal name of *mainensis*, considering those from Labrador to be typical. Further study however shows that these are also quite different from the typical form, in fact, more so than the variety *mainensis*.

APORRHAIIS OCCIDENTALIS (Beck). Pl. I, fig. 1.

Rostellaria occidentalis Beck, Guerin's Mag. de Zool., 1836, vol. 6, classe 5 (text) pl. 72.¹

¹ Beck refers to a paper as follows:—"in Lyell Catl. of the Fossils of St. Laurence Bay, in Geol. Trans". This paper did not actually appear until 1841. Trans. Geol. Soc. London, vol. 6, (2 ser.) 1841 (read April 24, 1839). The real title of the paper is—"Remarks on Some Fossils and Recent Shells collected by Captain Bayfield R. N. in Canada," by Charles Lyell. A list of fossil shells from Beauport near Quebec, is followed by the following remark: "For the sake of comparison I subjoin a list of the recent marine shells of the Gulf of St. Lawrence, forwarded to me by Capt. Bayfield in the naming of which I have been assisted by Dr. Beck and George Sowerby." *Rostellaria occidentalis* appears in the list on page 138.

Rostellaria occidentalis Gould, Inv. Mass., 1841, p. 298, fig. 205.

Arrhoges occidentalis Gabb, Amer. Journ. Conch., vol. 4, p. 145—1868.

Aporrhais occidentalis Gould, Inv. Mass., 2 ed. 1870, p. 320, fig. 589.

Aporrhais (Arrhoges) occidentalis Johnson. Fauna of New England. List of Moll. Occas. Papers, Boston Soc. Nat. Hist, p. 128, 1915.

The shell described and figured by Beck is 57 mm. in length, diameter of the penultimate whorl 15 mm., width of the lip 20 mm. The last whorl has about 25 longitudinal costae. Specimens were from the Gulf of St. Lawrence and Newfoundland.

This is the form found in the deeper waters of the Gulf of Maine and in the Gulf of St. Lawrence, varying in size from 50 to 70 mm. The specimen represented by figure 1 is from Newfoundland and is what may be considered as typical. Its length is 62 mm. penultimate, whorl 18 mm. in diameter, width of the lip 25 mm. The penultimate whorl has about 19 longitudinal costae and the body whorl about 25 costae which become obsolete on the expanded portion. In perfect specimens the entire shell is ornamented with fine raised spirals, but these are usually eroded on the spire, the peripheral and subperipheral ridge on the body whorl often quite distinct. In most cases the extension of the lip extends across the penultimate whorl and in a few specimens onto the adjoining whorl.

A fine series was obtained by Mr. W. S. Schroeder of the United States Fish Commission steamer "Albatross II" in 88 fathoms, off the Isles of Shoals, New Hampshire, the larger specimens measuring 70 mm. The most southern records are the Georges Bank 50 fathoms Lat. 41° 23' N. Long. 68° 46' W. and off Gurnett Point, Plymouth, Mass., 20 fathoms (R. K. Smith and W. F. Clapp). In 1871 J. F. Whiteaves dredged a living specimen in 120 fathoms, N. E. of the Island of Anticosti.

APORRHAIIS OCCIDENTALIS, var. *MAINENSIS* Johnson, Pl. 1, figs. 4-6. *THE NAUTILUS*, vol. 39, pp. 133-134, 1926.

This form is distinguished by its more slender spire and fewer longitudinal costae. The number of costae on the penultimate whorl is 14 and on the body whorl about 18. The young (fig. 6) of this and the typical form are often difficult to separate. The length of the type (fig. 5) is 62 mm. The type lot was dredged by Dr. C. W. Townsend near Gillpatrick Ledge, off Northeast Harbor, Maine, in 5 to 6 fathoms, also taken at Eastport, Maine, 20 fathoms (Hyatt) and at Digby, Nova Scotia, by E. W. Roper. The figure by Gould represents the typical form and not this variety as stated in 1926.

APORRHAIIS OCCIDENTALIS var. *LABRADORENSIS* n. var. Pl. 1, figs. 2, 3.

This is readily separated from the typical form by its smaller size, more slender spire, smaller and more numerous costae and less expanded lip. On the penultimate whorl there are about 24 longitudinal costae and on the body whorl about 29, peripheral lines obsolete or wanting. Width of the lip 15 mm. The lip is confined to the body whorl, usually not reaching the suture and rarely extending onto the penultimate whorl. The length of the holotype (fig. 3) is 52 mm. and of fig. 2, representing an unusually high spire, 63 mm. Holotype and paratypes are from Egg Harbor, Labrador, 7 fathoms (Owen Bryant). Most of the specimens from the Labrador coast are badly eroded.

For this species Gabb in 1863 proposed the genus *Arrhoges*, based on the following characters "Anterior canal nearly obsolete, no posterior canal, outer lip expanded, simple." Fischer made it a subgenus of *Aporrhais* defining it as having anterior and posterior canal very short, lip simple. The study of a large series of *Aporrhais pespelicani* Linn. shows in senile specimens a thickening of the lip until the posterior canal becomes obsolete. This feature is best shown in three specimens from Clyde, Scot-

land, labeled var. *bilobata* in which the mantle has receded until only about half of the thickened lip is covered by the mantle, the posterior canal is wanting and the shape of the aperture closely resembles that of a small *A. occidentalis* var. *labradorensis*. The shell characters mentioned therefore seem of little generic value and it seems doubtful if there is any marked anatomical difference.

I am indebted to the Boston Society Natural History for the photograph of the varieties of this shell and to Mr. C. V. MacCoy for figure one.

DESERT HELICIDS OF THE MICRARIONTA HUTSONI
GROUP

BY G. WILLETT

For some time past the writer has had in his collection shells of small *Micrariontas* from the California desert that were apparently closely related to *Micrarionta hutsoni* Clapp and *M. desertorum* Pilsbry and Ferriss. Awaiting a better study series of these two Arizona forms, the disposition of the California shells has been held in abeyance. The opportunity to visit southwestern Arizona arrived recently and on March 7, 1930, the writer and his wife visited the type locality of *M. desertorum*, collecting eighty specimens, a considerable number of which were living. On the following day the approximate type locality of *M. hutsoni* was visited and about 50 specimens, both living and dead, were secured.

The type locality of *M. desertorum* given by Pilsbry and Ferriss, (NAUTILUS XXI, 134), is "twelve miles south from Parker, Arizona." As there is only one mountain that this description could possibly apply to, it seems safe to assume that the locality visited by us was the correct one. The type locality of *M. hutsoni*, "eight miles from Quartzite, Arizona," (NAUTILUS XX, 136), is less definite but it must lie in the Dome Rock Mountains, the range west of Quartz-